

their operations according to circumstances, and when unimpeded in them, of the beauty and fitness of their architectural elevations.

EXPLANATION OF PLATE XXIII.

Fig. 1. *Stethorectus ingens*, female, natural size.

Fig. 2. Ditto male ditto: *a*, wing, natural size. The following are magnified: *b*, labial palpi; *c*, maxillary palpi; *d*, mandible of the female; *e*, mandible of male; *f*, antennæ of the male.

XLI.—*Description of some Grasses and Sedges from the East Coast of Demerara, with Remarks on the Geographical Distribution of the Species.* By SIR ROBERT SCHOMBURGK, Ph.D., Member of the Imperial Academy Nat. Curios. &c.

THE grasses and sedges are to a flat alluvial soil what the forests are to a hill-side; their interlacing roots render the soil firm and prevent it from being carried away by the surface waters, which chiefly during freshets under the tropics commit such ravages upon low lands. The grassy sward protects besides the ground beneath from the direct rays of the sun, which possess such increased power in the equatorial regions. As great as the benefit derived from these circumstances may have proved to certain localities on our globe, if the use which the grasses afford to mankind rested only upon these circumstances, they would never have been considered of that vast importance which is attached to this natural family. If we set aside that their seeds afford nourishment to millions of human beings, their herbage serves as food to millions of cattle which in their turn contribute to the support of mankind. It is not my object to dwell here on these important points, but merely to give an enumeration of some grasses and a few of the sedges which occur in the intermediate neighbourhood of the sea-coast in Demerara, and the greater number of which are used as fodder. It must not be considered that this list contains all the Graminaceæ of that locality,—their number might be tripled; they were merely the result of short botanical excursions in the neighbourhood of Georgetown and to Mon Repos, a sugar-plantation on the east coast of Demerara; a few I received from Mr. Garnett at Cuming's Lodge, about six miles east from Georgetown. This small collection was submitted to the examination of Professor Nees von Esenbeck, the great illustrator of Graminaceæ and Cyperaceæ, who with his usual kindness has described those peculiarities in which the Demerara specimens deviate from former descriptions of species. It is worthy of observation that these deviations amounted in no instance to specific differences.

I have added the vernacular names under which the species and

varieties are known among the labouring population. The grasses appear sometimes, where the soil differs in greater dryness or composition, under such different forms that the common people bestow various names upon the same species, and in no instance is this more the case than in *Leptochloa virgata*, of which I have given merely the most common vernacular names. This peculiar appearance repeats itself where the plant meets similar soil, dryness or humidity, which chiefly affect the seeds, and give it a white, red, or purplish colour.

The geographical distribution of grasses is a very remarkable point: some species seem to follow man; and scarcely has he cleared the ground from the virgin wood which he selected in the far west of the United States, in the tropical forests of Guiana and Brazil, in the plains of South Australia or other parts of the world, for his settlement, when certain species of grasses show themselves among his cultivation which he recognises as acquaintances from the country he left behind.

In the West Indies and South America, African species of grass are cultivated for the sake of fodder, while the indigenous species are entirely neglected. The planter follows the custom of his ancestor as a prescribed rule, and changes, even where they would prove for the better, are eschewed as a transgression upon the good old times. Hence I am not astonished that so fine a grass as the indigenous *Paspalus virgatus* is neglected, and the preference is given to the cultivation of the guinea-grass (*Panicum maximum*).

The collection of grasses from Demerara consisted of the following:—

Paspalus conjugatus, Flügge; Nees ab Esenbeck in Martius Flora Brasiliensis, ii. 44; Meyer, Prim. Flora Essequiboensis, p. 49; Flügge, Graminum Monographiæ, p. 102; Raddi, Agrostographia Brasiliensis, p. 23.

Paspalum conjugatum, Bergius in Nova Acta Helvetica, vii. 129; Swartz, Flora Indiæ Occidentalis, i. 133; Kunth, Enumerat. Plant. i. 51.

Sour-grass; Broad-leaved Savannah-grass.

It is one of the most abundant species of grasses in Mexico, on the banks of the Orinoco and Essequibo in Peru, New Granada and the West Indies. It grows in moist shady places, and often reaches a height of from two to three feet. In favourable situations it is in blossom almost throughout the year. As a fodder-grass it does not stand in high esteem; the cattle refuse it in its green state; it is however useful as hay. According to Browne, "the roots and leaves of this grass, pounded and applied externally, are observed to cure sores and ulcers of all sorts with

more certainty than most other things used for that purpose." (History of Jamaica.) The following varieties occur on the sea-coast of Demerara :—

Paspalus conjugatus, var. *distachya minor*, N. ab E. in lit.

Paspalus conjugatus, var. *tristachyus*, N. ab E. in lit. From the sugar-plantation, Mon Repos, on the east coast of Demerara.

Paspalus conjugatus, var. *major*, *di-tristachyus*, N. ab E. in lit. Collected in the neighbourhood of Georgetown.

Paspalus vaginatus, Flügge in Pasp. p. 108 ; Raddi, *l. c.* p. 24 ; Nuttall, Gen. Americ. [The genera of North American Plants], i. 57.

Paspalum vaginatum, Swartz, *l. c.* i. 135 ; Humboldt et Kunth, Nov. Gen. et Spec. i. 91 ; Elliot, Sketch of the Botany of South Carolina and Georgia ; Trinius, Species Gram. Icon. et Descr. v. t. 1 (from Martinique), t. 2 from the West Indies.

Water-grass ; Crab-grass.

The geographical distribution of this grass is very extensive. Humboldt found it in New Granada, Siebers in Mauritius, Sellow in Monte Video, Rothery in Cayenne*. Robert Brown describes a variety from New Holland, Swartz from Jamaica, Nuttall from New Orleans ; according to Elliot, Dr. Baldwin found it in humid soils near Savannah ; in Trinius's herbarium is a specimen from North America, and two are pictured in his work, one from Martinique, and the second from some other island in the West Indies. Kunth gives Tranquebar and Equinoctial Africa as additional localities. I found it growing at the plantation Mon Repos on dams near trenches ; likewise in Georgetown on Eve Leary Parade ground ; and Mr. A. Garnett sent me some specimens from Cuming's Lodge which differ from the others and form a variety. It propagates most rapidly by sending roots into the ground from its numerous joints. It soon destroys cultivated plants by spreading its shoots with an almost inconceivable rapidity in every direction like a thickly-laced mat. It is an excellent fodder for sheep, and cattle are generally fond of it. Nuttall observes that it has been recommended to agriculturists in North America, and he thinks that in warm maritime situations it would continue growing and flowering and prove productive, but in Europe the early frosts would destroy it. Professor Nees von Esenbeck describes the two following varieties from Demerara as follows :—

Paspalus vaginatus, var. *a. spiculis glabris*, Flügge, Pasp. p. 108. From Mon Repos, Eve Leary, &c.

Paspalus vaginatus, var. in culmo valde repente firmo, ramis dense stipato. From Cuming's Lodge.

* Vidi in Mus. Brit.—R. H. S.

Paspalus pusillus, Flügge, *l. c.* p. 100 ; Presl in *Reliquiæ Hænkeanæ*, i. 210.

Paspalum pusillum, Venten. ; Kunth, *Gram.* 2. t. 108 ; *Enumerat. Plant.* i. 51.

P. pusillus, var. foliis subtus plus minus pubescentibus, ad var. β . *serpens* (*P. serpens*, N. ab E. in *Mart. Fl. Bras.* ii. 50) *transiens*, N. ab E. in lit.

Kunth, in his *Enumerat. Plant.* i. 50, gives St. Thomas and Porto Rico in the West Indies, and Mexico as habitats. The above variety was gathered on the savannahs near Georgetown. It is a small elegant grass, and is esteemed by agriculturists as a good fodder-grass.

Paspalus virgatus, N. ab E. in *l. c.* ii. 73 ; Meyer in *l. c.* p. 49.

Paspalum virgatum, Linn. ; Kunth, *l. c.* i. 61 ; Trinius, *l. c.* t. 131, 132 ; Jacquin, *Icones Plantarum Rariorum*, 2. t. 11 ; Sloane, *History of Jamaica*, p. 112. t. 69. f. 2.

P. virgatus, var. β . *Schreberianus*, spicis circiter triginta, rachi margine subpilosa glumis undique glabris, Flügge, *l. c.*

Lamaha-grass.

This excellent grass, which Mr. Garnett informs me is esteemed for fodder equal to guinea-grass, grows on the banks of rivulets, and reaches frequently a height of from three to four feet and sometimes even six feet, the culms having the thickness of a hen's quill. The distribution of the true species, although not so widely spread as *P. vaginatus*, is nevertheless very extensive. Linnæus gives its habitat as Jamaica, and Sloane pictures a tolerable representation from the same island ; Humboldt describes it from Virginia de la Popa.

The specimens from Demerara are Flügge's variety β . *Schreberianus*, which Ledru found in Porto Rico, Sellow in Monte Video and on the banks of the Rio Grande do Sul, and Von Martius on the banks of rivers in the neighbourhood of Villa Ricca and Tejuco in the province of Minas Geraes. I collected it on the road which leads to the Grand Etang in the island of Grenada. Jacquin gives an excellent figure of the true species ; Trinius's representation (t. 131) resembles the Guiana variety.

Helopus punctatus, N. ab E. in *l. c.* ii. 16.

Paspalus punctatus, Flügge, *Monogr.* 127.

Eriochloa punctata, Kunth, *l. c.* i. 72 (excl. syn. *Helopus annulatus*, N. ab E.).

Milum punctatum, Linn. ; Swartz, *Observat.* 37.

Black-seed grass ; Long-seed grass ; Coarse grass.

A perennial grass growing on dams and along trenches in

Demerara, and likewise in cultivated fields among the sugar-canes. Cattle are fond of it, and it is generally considered a good fodder-grass. Sellow found it in Brazil, and Kunth states that it occurs likewise in Mexico, New Holland and Senegal.

Panicum (Digitaria) horizontale, Meyer; N. ab E. in *l. c.* ii. 99; Meyer, *l. c.* 54; Jacquin, *Observationes Botanicae*, iii. 18. t. 70.
Digitaria horizontalis, Willd. Enum. 92.

Fine White-seed grass.

This is a very slender and graceful annual grass which is to be met with in several of the West India islands as well as on the continent of South America. Von Martius found it in the provinces of Bahia and Parà, and Raddi in Rio Janeiro. If we except the latter locality, it does not appear to extend beyond tropical America. The jockeys in Demerara consider this the best fodder for race-horses.

Panicum (Digitaria) fimbriatum, Presl in Rel. Hænk. i. 298; Kunth, *l. c.* i. 81.
Digitaria fimbriata, Link.

Lony-grass.

A creeping annual grass which is considered good fodder in Demerara. It has been found in Brazil, Mexico and California. The Demerara species are from Mon Repos; it is not very abundant, and seldom to be found in extensive tufts.

Panicum affine, N. ab E. in *l. c.* ii. 113.
P. fuitans, Meyer, *l. c.* 51 (excl. syn., teste N. ab E.).
P. paspaloides, Kunth, *l. c.* i. 77; Lam. Ill. Gen. i. 176.

Pipe-grass; Vine-grass.

The culms of this grass are hollow and of the size of the tube of a clay tobacco-pipe, from which circumstance it has received its vernacular name of Pipe-grass. It is found growing in trenches where the culms are floating on the water, for which it is particularly qualified in consequence of its hollow culms. Small islands formed of this grass are sometimes seen to come floating down the Demerara river, and arriving at its mouth they are driven backwards and forwards by the tides, and collect sometimes during the rainy season in large numbers about the anchorage before Georgetown. It has frequently occurred that large snakes of the Boa kind, and even alligators, have come down the river upon these floating islands. I have observed whole patches of this grass along the banks of the rivers in the interior, the stems matted together and interlaced with *Ponthederia* and other water plants.

Panicum colonum, Linn.

Var. γ . *polysetum*, N. ab E. in Herb. Lindl. rhachibus basi et ad originem spicularum setosis: spicis 9—15 approximatis, mediis subinde geminatis.—Differt hæc forma a *P. frumentaceo*, Rottb., foliis angustioribus, spiculis minoribus, glumis flosculisque minus cuspidatis ejusdemque omnino structura ac in *P. colono*, N. ab E. in lit.

Rice-grass; *Black-seed grass*; *Purple Panic-grass* (in Barbados).

The Rice or Black-seed grass is considered the best for fodder, and grows most luxuriantly in new soils. The true *P. colonum* of Linnæus, or *Oplismenus colonus* of Humb. and Kunth, is more frequent in the West India islands than in the coast regions of Guiana. Von Martius found it in the Brazilian provinces of Bahia and Piauhy, Sellow in Monte Video, and Kunth observes that it likewise occurs in the East Indies, in the Marianas, Luçon and Guaham. I have gathered it in Tortola (Sage Mountain), Porto Rico (Sierra de Luguillo), Barbados and Grenada; Sloane pictures it from Jamaica (Hist. Jam. i. t. 64. f. 3), and Jacquin in his *Eclogæ Gram.* in vol. iv. t. 32.

In consequence of its superiority as a fodder-grass, it ought to be cultivated for agricultural purposes like the guinea-grass, which no doubt would greatly improve its quality.

Panicum tenuiculmum, Meyer, *l. c.* 58; N. ab E. in *l. c.* ii. 186; Kunth, *l. c.* 95; Trin. *l. c.* 18. t. 215.

P. agrostidiforme, Raddi, *l. c.* 48.

A kind of White-seed grass.

An annual plant with creeping roots and slender upright culms. The specimens which I collected near Georgetown in Demerara are about twelve inches high; it differs however much in stature, according to the soil in which it grows, whether dry or humid. It is much esteemed as a fodder-grass.

Von Martius found it on the Rio Negro in Bahia, Nees von Esenbeck saw it in Willdenow's herbarium from Jamaica, and Meyer describes it among his Essequibo plants.

Panicum maximum, Jacq.; N. ab E. in *l. c.* ii. 166; Swartz, *Fl. Occid.* i. 70; Jacq. *l. c.* Rar. i. t. 13.

Panicum jumentorum, Pers. *Syn.* i. 83; Kunth, *l. c.* i. 101.

Panicum polygamum, Swartz, *Prodr. Fl. Ind. Occid.* p. 24.

Holcus assurgens, &c., Browne, *Jam.* p. 366. no. 2.

Guinea-grass.

This useful grass was introduced by accident into Jamaica from Africa. The Chief Justice of that island received about 1744 a present of some African birds and a parcel of seeds from their

native place to feed them with. The birds died, and the remainder of the seeds were thrown within a fence where they grew, and the eagerness of the cattle to eat this grass suggested the idea of cultivating it.

It is now cultivated in the West India islands and South America generally. I collected in the neighbourhood of Georgetown a variety described as *P. maximum* β . *leve* by Nees von Esenbeck in Martius's Brazilian Plants (*l. c.* ii. 167).

Panicum (Echinochloa) spectabile, N. ab E. in *l. c.* ii. 262.

Oplismenus spectabilis, Kunth, *l. c.* i. 145.

Panicum majus, &c., Browne, Hist. Jam. p. 133. no. 2.

Scotch-grass ; Water-grass.

This species, which has been introduced from Angola, is most extensively cultivated in Brazil under the name of Capim de Angola. Browne, in his 'History of Jamaica,' observes, that it is cultivated near the towns in Jamaica with great care (and sold as green fodder), and found to be one of the most beneficial productions of the island. An acre of good land, well-stocked with this plant in a seasonable part near either Kingston or Spanish Town, is computed by him to bring in above a hundred and twenty pounds of their currency a year. It appears to have been formerly cultivated in Demerara; however, at present the guinea-grass is preferred as a green fodder. I collected near Georgetown a variety which Nees von Esenbeck has designated as *P. spectabile*, var. *vaginis glabris rarissimisve setulis conspersis*, N. ab E. in lit.

Hymenachne amplexicaulis, N. ab E. in *l. c.* ii. 276.

Panicum amplexicaule, Rudge, Plant. Guianæ rariorum icones et descr. i. 21. t. 27.

Panicum Myurus, Lam. Ill. i. t. 172; Kunth, *l. c.* i. 86; Meyer, *l. c.* 50.

Broad-leaf grass.

It grows in trenches and is used as fodder. My specimens were from Mon Repos; Meyer gives the small island Aruabisi in the mouth of the Essequibo as a locality, and Rudge possessed it among his Guiana plants; but it does not appear to be very extensively distributed.

Cenchrus echinatus, Linn. Spec. 1488; Kunth, *l. c.* i. 166; Humb. et Kunth, Nov. Gen. i. 114; Meyer, *l. c.* 66.

Bur-grass.

The hardened and bristly involucre of this plant, so common in the pastures, attaches itself very firmly to the clothes of persons walking through the grass. The horses appear to be fond of it, but it is considered injurious to their stomach. The West Indies in general, Mexico, Cumana, the coast of Guiana, Brazil, Arabia, the Philippines, Barbary, and the Southern States of

North America, have been named as localities where it has been found growing.

Cenchrus tribuloides, Linn. Spec. 1489 ; Michaux, Fl. Bor. Am. i. 61 ; Pursh, Fl. Am. Sept. i. 60.

This plant resembles the former in its general appearance ; it is however more restricted to the sea-shore and sandy places, and extends to a more northern latitude than the former. I collected it in Demerara on the east coast, and more recently in Barbados. Sellow found it in Monte Video, and the American authorities above-cited prove its occurrence in the United States.

Andropogon (Anatherum) bicornis, Linn. ; Meyer, l. c. 70 ; Swartz, Obs. 382.

Anatherum bicorne, N. ab E. in l. c. ii. 321 ; Browne, Jamaica, p. 365 ; Sloane, Jamaica, i. 42. t. 13 ; Pursh, Fl. Am. Sept. i. 75.

Fox-tail ; Deer's-tail.

The culm of this grass, which grows on savannahs and at the sides of mountains, reaches a height of from four to five feet, and is of the thickness of a goose-quill. The tufts of hair upon the flowers are long, white, soft, and much finer than cotton ; they are sometimes of a reddish or purplish colour. The blades are too coarse to serve as fodder, but the negroes used the halms formerly to thatch their houses with. Piso was informed by the Indians that an infusion of the root was an antidote against poison. It occurs in Brazil, Guiana, the Caribbee and Virgin Islands, Jamaica (where, according to Browne, it is called Mountain-grass), and Pursh enumerates it among his North American plants from Virginia.

Sporobolus virginicus, Kunth, l. c. i. 210.

Vilfa virginica, Pal. de Beauv. Agrost. 16.

Agrostis virginica, Torrey, Fl. Am. Conf. Bor. et Med. i. 89.

Agrostis pungens, Pursh, l. c. i. 64 (excl. syn. Schreb.).

Crab-grass of Browne.

This elegant little grass, which is very extensively distributed, resembles in its habit of creeping along the soil *Paspalus vaginatus*, from which circumstance Browne has named it Crab-grass in his 'History of Jamaica.' It is generally found on the skirts of brackish water, and those specimens which have come under my observation were scarcely above five or six inches in height. Some specimens which I collected near the steamboat wharf in Georgetown are designated by Nees von Esenbeck as *S. virginicus*, var. *minor*, *minus glaucus*. Humboldt found it near Caliao, Truxillo and Gnamang, on the shores of the Southern Pacific, and near Punta Araya and Cumana, on the Atlantic Ocean ; Kunth

observes that it occurs in Martinique, the Sandwich Islands and the Cape of Good Hope; Labillardière found it in New Holland, and Browne gives Hunt's Bay in Jamaica as a locality. Von Martius found it in the province of Bahia on the sea-shore; Pursh describes it from Virginia.

Cynodon Dactylum, Pers. Syn. i. 85; Browne, Prodr. i. 187; Nees ab E. Gram. Afr. Austr. 241; Pursh, l. c. i. 70.

Agrostis linearis, Retz.; Jones in Asiat. Res. iv. 248.

Panicum lineare, Burm. Ind. 25. t. 10. f. 2; Roxb. Fl. Ind. i. 294 (?).

Agrostis bermudiana, Tussac in Herb. Juss.

Durva, Dub or Doob-grass of the Hindoos, Lambert in Linn. Trans. vi.

Bahama or Yard-grass.

This is a very elegant grass in appearance, but one of the most injurious in cultivated grounds. It sends its roots deep into the soil and increases with great rapidity. If it make its appearance among the sugar-cane plants, it requires great care to have it exterminated*. This grass has been found in every part of the world: Knapp pictures it in his 'Gramina Britannica' (tab. 13) under the name of Creeping Dog's-tooth grass, and observes that it was discovered upon the sands of Marazion in Cornwall in the days of Ray, where it has been found since; Penzance is another locality mentioned in Hooker's 'Flora Britannica,' and it appears to be common in Southern Europe. It occurs likewise in the Caucasus, East Indies, North and South America, Southern Africa, Cape of Good Hope, Luçon, Otaheite, New Holland, &c.

It is considered in Demerara a good fodder-grass, and grows generally on dams, and in the yards attached to the buildings on sugar-estates. Nuttall calls it a remarkable creeping-grass, growing very luxuriantly on the sands of the sea-coast as well as on the poorest loose soil, and were not its extirpation so difficult, it might be of importance in establishing pastures where scarcely any other vegetable would exist. It forms so thick a turf as to suffer few other plants near it, and the variety β . would look as pretty in lawns under the tropics as the *Festuca ovina* in our temperate climates.

I collected two varieties in Demerara; the first is from the neighbourhood of Georgetown, and the second from Mon Repos; Nees von Esenbeck designates them as follows:—

α . *C. Dactylum*, var. foliis angustioribus viridibus lævioribus, flosculi accessorii setiformis capitulo compresso truncatoque.

β . *C. Dactylum*, var. pumila, foliis angustioribus viridibus, capitulo setulæ accessorie truncato compresso.

* It is called Devil's-grass in Barbados, and is said to have received its name from the difficulty of eradicating it; according to others, it was introduced by a person of the name of De Durville, which the negroes corrupted into the one by which it is now known in that island.

Leptochloa virgata, Pal. de Beauv. Agrost. 71 ; Kunth, En. Pl. i. 269.

Cynosurus virgatus, Linn.

Eleusina virgata, Pers. Syn. i. 87.

Leptostachys virgata, Meyer, l. c. 74 ; Sloane, Hist. Jam. t. 70. f. 2 ;
N. ab E. in l. c. ii. 432.

Var. α . Purple-head grass ; Black-seed grass ; Seed-grass.

Var. β . White-head ; White-seed grass.

The numerous names under which this grass is known in Demerara point out how frequently it differs in its general appearance, which has led the common people to consider it a different plant and to give it a separate name. The caryopsis or seed is generally of a pale reddish colour, and in some instances, as in the variety called Purple-head, the glumes are of a darker colour. It is a perennial grass, and reaches in favourable soil to a height of from three to four feet. It blossoms after the vernal and autumnal rains, and its pretty fasciculated spikes are frequently from five to six inches in length. It is esteemed a very good fodder for all kinds of cattle, and if some attention were paid to its cultivation, it might offer great advantages as a stable fodder.

The Demerara varieties are described by Nees von Esenbeck as follows :—

Leptochloa virgata (Nees ab Esenbeck in Mart. Fl. Bras. ii. 432).

α . communis, spiculis 5–6 floris distichis. From the neighbourhood of Georgetown, Cuming's Lodge, &c.

β . spiculis 3–4 floris subhomomallis. From Mon Repos.

Eleusina indica, Gaertner ; N. ab E. in l. c. ii. 439 ; Kunth, l. c. i. 272 ;

Lam. Ill. Gen. t. 48. f. 3 ; Meyer, l. c. 75 ; Trin. Icon. 6. t. 71 ;

Michaux, Fl. Bor. Am. i. 64 ; Elliot, Sketch of the Botany of South
Carolina and Georgia, i. 175.

Eleusina domingensis, Sieber, Fl. Martin.

Cynosurus indicus, Linn.

Kanara Pullu, Rheede, Malab. xii. 131. t. 69.

Browne, Hist. Jam. 137. No. 4 ; Sloane, Hist. Jam. i. 111.

*Man-grass**

Excepting Europe, we have in this species another instance of almost a universal distribution ; it has been found growing at least over three-quarters of the globe. It is an annual, and grows in moist shady soils to a height of from two to three feet. Although it is none of the best fodder-grasses, cows eat it very readily, and it makes very good hay. For this purpose it is almost better calculated than any other tropical grass. Elliot calls it Crowfoot-grass, and observes that it is found in rich cultivated grounds very abundantly, and is considered in Carolina

* In Jamaica and Barbados it is called Dutch-grass.

one of the best grasses, growing more luxuriantly than the American crab-grass. Pursh is of a different opinion, and observing that it is known in Virginia under the name of Wire-grass, he considers it a weed noxious to cultivation. Dogs are frequently seen to eat it when sick*, from which circumstance it is sometimes called Dog's-grass. Humboldt found it in Cumana and in Quito; Raddi near Rio de Janeiro; in Sir George Staunton's herbarium are specimens from Maranham, Bahia, Para; Sellow collected it at Monte Video, and Kunth gives the following additional localities: East Indies, Japan, Egypt, Mauritius, Luçon, Society Islands, Southern States of North America, West Indies, Guiana, &c.

Spartina fasciculata, Pal. de Beauv. Agrost. 25. t. 7. f. 6; Kunth, l. c. i. 279; Lam. Ill. Gen. i. 180; N. ab E. in Herb. Lindl.

I collected this plant near brackish water in the neighbourhood of Georgetown; my specimens are from two to two and a half feet in length. It is by no means abundant, and I am not aware whether in agricultural respect it is of any use in Guiana and the West Indies. Elliot observes (l. c. p. 94), that a species of *Spartina* is greedily eaten by horses and cattle, and that it is remarkable for a strong rancid and peculiar smell, affecting the breath, the milk and butter, and even the flesh of the cattle that feed upon it. It affords however good pasturage for out-door stock, and becomes valuable as manure. Kunth gives South America as locality.

Dactyloctenium mucronatum, Willd. En. i. No. 1029; N. ab E. l. c. ii. 436.

D. ægyptiacum, Humb. et Kunth, Nov. Gen. i. 170; Kunth, En. Pl. i. 261.

Eleusina cruciata, Lam. Ill. Gen. t. 48. f. 2.

Chloris mucronata, Mich. Fl. Bor. Am. i. 59; Pursh, l. c. i. 88.

Cynosurus ægyptiacus, Linn. Sp. Pl. 106.

Sloane, Catal. 33; Hist. Jam. i. 110.—Gramen dactylon americanum cruciatum Barbadosibus nostratibus "Dutch-grass" dictum, Pluck. Alm. 175. t. 189. f. 7.—Gramen cruciatum Zeylanicum humi repens, Burm. Thes. Zeyl. 106.—Goddam; Rumph. Amb. vi. 10. t. 4. f. 1. The short-shanked cruciated Grass, Browne, Hist. Jam.

The Cruciated grass.

The spikes of this pretty grass are fingered, from two to five in number, mucronate, and where there are four, cruciated, from which it has received its vernacular name. The leaves are ciliated, the stem ascending, and in my specimens from five to six inches

* *Poa ciliaris* (*Eragrostis ciliaris*, N. ab E.) is called Dog's-grass in Barbados, and the canine race seem to give the preference to this species where they have a choice.

high, and the spikelets, which are one-sided, about six-tenths of an inch in length. They are not entirely erect; although this is the case where there are merely two, and in the middle spikelet where there are three, the lateral ones are nearly horizontally disposed. It has spread over a great part of the habitable globe. Von Martius found it at Bahia, Pernambuco and Piahy; Humboldt near Cumana and in Mexico, near the port of Acapulco, and at the lake of Cuizeo at a height of upwards of 5000 feet. It is described from almost all warm countries, as *e. g.* from Northern Africa, the East and West Indies, the Moluccas, and it has likewise been found in North America* and even in Sicily in Europe.

CYPERACEA. SEDGES.

Cyperus Luzulæ, N. ab E. in Mart. et Endl. Fl. Bras. Fasc. iii.—v. 20; Kunth, En. Pl. ii. 43; Meyer, *l. c.* 30 (var. *δ. glomeratus*); Humb. et Kunth, Nov. Gen. i. 209.

I collected this specimen in the neighbourhood of Georgetown, where it grows near trenches. It does not appear that its geographical distribution extends beyond the tropical regions of America; Humboldt collected it on the banks of the Cassiquiare.

Cyperus nemorosus, Meyer, *l. c.* 31; Kunth, *l. c.* 60.

This sedge, which stands intermediate between *C. rotundus* and *C. tenuiflorus*, is very common along the trenches and dams in Georgetown. Guiana appears to be the only locality where it has hitherto been found. Meyer describes it from Aruabisi (Tiger Island), a small island in the mouth of the Essequibo.

Cyperus ferax, Rich.; Kunth, En. Pl. ii. 89.

Cyperus distans, Meyer, nec Rottb.

Cyperus stellatus, Rudge, Guian. 17. t. 20.

Savannah or Razor-grass.

The edges of the leaves of this species are so sharp, that coming in contact with the hand or any other fleshy part of the body they inflict a wound as if by the edge of a knife, which has besides the disadvantage of healing with more difficulty than if caused by a sharp-edged instrument. Thevet, in his curious work, 'Les Singularités de la France Antarctique, Paris, 1558,' describes this sharp-edged sedge, and observes that the Indian females use it to shave off the hair on the eye-brows of their husbands, and that the blades are as sharp as a razor. It grows generally on savannahs, from which and the sharpness of its edges it has received the vernacular names. Pöppig collected it at Peru: New Granada and Montserrat are given as other lo-

* Trinius figures a species from North America in the first vol. of his 'Spec. Gramin. Icon. et Descr.'

calities. It grows in Demerara on savannahs near trenches, and is considered a great nuisance upon the pasturage.

Cyperus rotundus, Linn. ; Kunth, *l. c.* ii. 58.

C. Hydra, Meyer, *l. c.* 31.

C. hexastachyus, Rottb. var. *umbella laxa*, radiis longis tri-tetastachyis.

Nut-grass.

This is of all Cyperaceous plants the most universally distributed, and the one which is most injurious to cultivation. It requires unwearied care to eradicate it where it has once shown itself. The round tubercles of its roots increase rapidly in number, each of which forms hereafter an individual plant if left in the ground. Numerous fibres shoot from the base of the stem, which descend where it finds a fertile soil from ten to twelve inches into the ground, almost every one of which produces a small tuber, from which spring horizontal fibres in every direction, forming additional tubers at a distance of six to ten inches asunder. From each of the tubers rises a stem upwards which becomes ultimately an individual plant, and which in its turn throws out lateral fibres like the parent plant. In that manner a single plant soon increases and spreads over the ground in a short time. If a spot of a couple of square feet is dug up where the nut-grass has been propagated, the interlacing of the roots affords a most remarkable appearance, and the great number of fibres resemble an elaborated network. The only means of eradicating it with success where it has spread over cultivated ground, is to dig up the soil repeatedly and to destroy the tubers by burning them. Those which remain in the ground no doubt will sprout, but by being exposed to the light the young shoots bleach and perish, and the power of the tubers to reproduce new shoots becomes ultimately exhausted. Almost every colony has its own account how this great scourge to cultivation was introduced. It is related in Barbados that the nut-grass was first brought there in a pot of flowers sent to a Mr. Lillington in St. Thomas's parish, and the earth being turned out of it the tuber took root, and spreading over the adjacent fields it ultimately propagated over the whole island. Such cases explain the otherwise almost incredible distribution of a single species over the whole habitable world. As localities where the nut-grass has been found growing, I will name England, France, Italy, Virginia, Carolina, the West Indies, Mexico and South America, Ceylon, Bourbon, Mauritius, East Indies, the Philippine Islands, the Marianas, New Holland, China, Java, Guinea, Teneriffe, Egypt, Algiers, Arabia, Caucasus ; indeed this list proves satisfactorily that it has spread over the whole world ; but it deserves particularly to be men-

tioned, that it follows in tropical and warm regions the cultivation of the sugar-cane closely. The cattle eat it only when young. General Hardwicke, as mentioned by Lindley in his 'Vegetable Kingdom,' reports that the tubers of this sedge are administered successfully in cases of cholera by Hindoo practitioners, who call the plant Mootha. It is a very pretty sedge, and would form a nice appearance on lawns did it not spread so rapidly and prove so injurious to the soil, which it exhausts in a very short time.

Hypoporum nutans, β . *hirsutum*, N. ab E. in Mart. et Endl. Fl. Bras. Fasc. iv. v. p. 170.

The roots of nearly all the sedges possess more or less tonic and aromatic principles, but none more than the above species, in which that property is not alone restricted to the roots, but is likewise possessed by the stems and leaves. The Macusi Indians call it Cumi or Wanarappa, and it is used in child-bed, likewise for pains in the stomach, in fevers, and in aromatic baths by the Indians. I have collected it on the savannahs near the Tapocoma lake in the regions of the sea-coast, and observed it abundantly on the great savannahs of the rivers Rupununi and Branco.

XLII.—*Note on Petasida ehippiger*a, a Grasshopper found in the interior of the Northern part of Australia by Mr. Dring and Dr. Leichhardt. By ADAM WHITE, F.L.S., Assist. Zool. Dep. British Museum.

THE amount of nondescript subjects in the animal kingdom, noted in recently published books of travel and voyage in this country, is very considerable; and if we include the animals figured and described in the zoological works, the result of the voyages of H.M.S.S. Beagle, Sulphur, the Erebus and Terror, and Samarang, the number would be very great. A systematic list of these accessions, carefully drawn up and digested, would form a most important addition to zoological bibliography, and would be hailed by naturalists abroad and at home as a most timely and useful assistant. Were foreign naturalists to do the same with the voyages and travels which appear in their respective countries great service would be rendered; for notwithstanding the able reviews of Müller, Erichson, Lovèn, Schaum, and M. Guerin-Ménéville, such lists systematically arranged would prove singularly useful, and would often prevent collision and a worse than useless synonymia, many of these books not being obtained by these reviewers. Out of five books on Australia published by Mr. Boone, and one on New Zealand by Mr. Murray, the descriptions of new species and genera are numerous, and *must be* referred to by the zoologist; besides, in many cases there are very

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